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POLAR OPERATIONAL ENVIRONMENTAL SATELLITES

(POES) PROGRAM

CONFIGURATION MANAGEMENT PROCEDURE

April 2002

REVISION B

GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

POLAR OPERATIONAL ENVIRONMENTAL SATELLITES (POES) PROGRAM CONFIGURATION MANAGEMENT PROCEDURE

Approved by:_____Signature on file_____
Karen Halterman
POES Deputy Program Manager
CCB Chairperson

Date: _____

GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND

POLAR OPERATIONAL ENVIRONMENTAL SATELLITES (POES) PROGRAM CONFIGURATION MANAGEMENT PROCEDURE

FOREWORD

This Configuration Management Procedure establishes and describes Configuration Management policies and procedures used by the National Aeronautics and Space Administration (NASA), Goddard Space Flight Center (GSFC), and GSFC POES Program. This Procedure also defines the objectives, applicability, and responsibility for implementing and maintaining a Configuration Management system for the Program. This document is under the control of the POES Program Configuration Control Board (CCB) and any change or revision thereto must be approved by the CCB Chairperson. Beneficial comments, additions, deletions, and any other pertinent data that may be useful in upgrading this document may be addressed to:

NASA/Goddard Space Flight Center
POES Program Office, Code 480
Attention: Configuration Management Office
Greenbelt, MD 20771
Code 480

REVISION PAGE

REVISION	APPROVAL DATE	CCR NO.	SECTION/PAGES
Initial	03/29/1996	CCR 1377	All
Revision A	03/23/20000	CCR 1726	Changes to requirements, forms, and references per 400-PG-1410.2.1A and GPG 1410.2. Changes include: global change “Plan” to “Procedure”, and “Project” to “Program”. Modify processes for clarification and delete obsolete forms.
Revision B	04/05/2002	CCR 1833B	All

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ILLUSTRATIONS

1.0 INTRODUCTION

The National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce (DOC) are involved in a joint effort and work together with the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) and the European Space Agency (ESA) to achieve overall program objectives for an operational satellite system intended to insure continuity and enhancement of meteorological observations from polar orbit. The general objective of the Goddard Space Flight Center's (GSFC's) POES Program is to meet NOAA program requirements to procure, develop, test, and launch five spacecraft (NOAA-K, L, M, N, and N') and to develop and integrate instrument sets for both the NOAA and EUMETSAT Meteorological Operational (METOP) spacecraft. The general objective of the EUMETSAT Polar System (EPS) team is to procure, develop, test, and launch two spacecraft (METOP-1 and -2) and to develop and integrate instrument sets for both the EUMETSAT METOP and NOAA spacecraft. The EUMETSAT is working together with ESA to develop the METOP series of spacecraft.

1.1 OBJECTIVE

The overall objective of this document is to define and describe the procedure for implementing a formal Configuration Management (CM) system on the GSFC POES Program. This Procedure outlines the system by which proposed changes to established baseline documentation affecting form, fit, function, performance, cost, and schedule are effectively assessed and controlled. POES CM system functions are described as follows:

- Configuration Identification--Establish a baseline to ensure identification and documentation of contract management and technical hardware and software requirements are completely accurate and specify the Program needs.

- Configuration Control--Implement a system to control changes to established baselines.

- Configuration Status Accounting--Implement a configuration accounting system which records and reports the processing and implementation status of changes to established baselines.

- Configuration Verification/Auditing--Ensure that all as-built configuration items are verified against their as-designed technical documentation.

1.2 SCOPE

This document establishes the requirements for the implementation of CM on the POES Program. This document is applicable to the POES Program. The requirements and procedures listed herein are applicable to all flight and ground system hardware and software and their associated documentation.

1.3 APPLICABLE DOCUMENTS

The following documents form a part of this Procedure to the extent specified herein.

NASA/GSFC Documents:

	Program Commitment Agreement - Polar Operational Environmental Satellites (POES)
GSFC-S-480-100	Execution Phase Project Plan for NOAA-K, L, M, N, and N' Spacecraft and the NOAA Instruments for the EUMETSAT METOP Spacecraft

400-PG-1410.2.1	Configuration Control
GPG 1410.1	Directives Management
GPG 1410.2	Configuration Management
NPG 1441.1	NASA Records Retention Schedules
GPG 1440.7	Control of Quality Records
400-PG-1410.1.1	Directives Management for Flight Programs and Projects

2.0 POES PROGRAM CONFIGURATION MANAGEMENT SYSTEM AND ORGANIZATION

2.1 CONFIGURATION MANAGEMENT DESCRIPTION

CM is the systematic control and evaluation of all changes to baseline documentation and subsequent changes to that documentation which defines the original scope of effort to be accomplished and the systematic control, identification, status accounting, and verification of all Configuration Items (CIs). The identification of each POES CI will be progressively baselined by approved technical documentation at selected times during the development process. Changes to approved baselines will be formally controlled through a Configuration Control Board (CCB).

2.2 POES PROGRAM MAJOR INTERFACES

The POES Program has many major interagency and international support interfaces including the following:

- Department of Commerce (DOC)
- National Oceanic and Atmospheric Administration (NOAA)
- Department of Defense (DOD)
- United States Air Force (USAF)
- European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)
- European Space Agency (ESA)
- French Centre National d'Etudes Spatiales (CNES)
- Canadian Defense Nationale (DND)
- Earth Observing System (EOS) (Aqua) Project
- United Kingdom Meteorological Office (UKMET)

The application of the POES CM system regarding these participants is governed by MOU, MOA, or Working Agreement (WA).

2.3 CONFIGURATION CONTROL BOARD RESPONSIBILITY

The POES Program CM system interacts with the CM systems of multiple entities as described below. Each CCB/Configuration Review Board (CRB) is composed of appropriate technical and management personnel necessary for prudent decision-making.

Membership of the POES CCB as well as CCB delegated responsibilities are detailed in

Appendix A, "POES Program Membership and Responsibilities of the Configuration Control Board."

2.3.1 NOAA NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE CONFIGURATION CONTROL BOARD

The NOAA National Environmental Satellite, Data, and Information Service (NESDIS) CCB is responsible for generating top-level program requirements and determining the budget associated with implementation of these requirements. The NESDIS CCB may, when necessary, refer proposed changes to higher level DOC offices for determination.

2.3.2 NASA/GSFC POES CONFIGURATION CONTROL BOARD

The NASA/GSFC POES CCB works in conjunction with the NESDIS CCB to establish and control configuration baselines relative to NOAA satellites, spacecraft bus subsystems, instruments for the NOAA spacecraft, program-unique support equipment, software, and launch vehicle interfaces. The POES CCB also works in conjunction with the EUMETSAT and ESA CRBs to establish and control configuration baselines relative to interfaces for the NOAA-provided instruments for the METOP spacecraft and the EUMETSAT-provided instrument for the NOAA spacecraft. The POES CCB may, when necessary, refer proposed changes to higher level NASA offices for determination.

2.3.3 EUMETSAT CONFIGURATION REVIEW BOARD

The EUMETSAT CRB, in conjunction with the POES CCB, is responsible for proposed interface changes relating to the EUMETSAT-provided instrument for the NOAA spacecraft.

2.3.4 ESA CONFIGURATION REVIEW BOARD

The ESA CRB, in conjunction with the POES CCB, is responsible for proposed interface changes affecting the definition of the NOAA-provided instruments for the EUMETSAT METOP spacecraft.

2.3.5 NASA/GSFC SPACECRAFT AND INSTRUMENT CONTRACTOR CONFIGURATION CONTROL BOARDS

NASA/GSFC spacecraft and instrument contractors are responsible for all changes that affect internal interfaces, performance, cost, schedule, and their respective instrument or spacecraft and associated interfaces.

3.0 CONFIGURATION IDENTIFICATION

Configuration identification is the ongoing process of identifying and documenting a product's functional and physical requirements, from initial selection through design, development, fabrication, testing, and delivery. The product configuration will be identified and reviewed at significant stages in its development. At each stage, the current configuration described by the technical documentation baselined. When POES documentation is formally released (draft versions excluded), all changes will be controlled through the POES CCB.

3.1 CONFIGURATION BASELINES

Configuration baselines are established at three defined milestones during the execution phase of the POES Program. The functional baseline is identified at the start of the execution phase, the allocated baseline is established at the conclusion of the Preliminary Design Review (PDR), and the product baseline is identified at product acceptance.

3.1.1 FUNCTIONAL BASELINE

The functional baseline is defined by a series of development specifications (i.e., POES Program performance specification, Statement of Work (SOW), Performance Assurance Requirements (PAR), and General Instrument Interface Specification (GIIS)) that establish the performance, design, and test requirements for each CI. These documents become part of the contract and are baselined at the time of contract award.

3.1.2 ALLOCATED BASELINE

The allocated baseline is defined by development specifications that establish the function, performance, design, test, manufacture, and acceptance requirements for each CI. Configuration control of these specifications begins at the PDR. Also included in this baseline are the Unique Instrument Interface Specifications (UIIS') and the Software Requirements Documents (SRDs) that will be controlled starting at the Critical Design Review (CDR). The UIIS' define the agreed-upon design at the interface between the instrument(s) and the spacecraft. The SRDs define the requirement for each computer program that is considered part of each CI.

3.1.3 PRODUCT BASELINE

The product baseline is defined by the configuration documentation supporting the approved design for each CI at the conclusion of the CDR. The documentation package will further define the product that will be submitted to the government for final acceptance. Included in this package will be product specifications, purchase specifications, test specifications, software design documents, computer program listings that include annotated source, object codes, drawings and operation and maintenance manuals.

3.2 DOCUMENTATION

Controlled documentation/drawings applicable to flight hardware and software will be updated to encompass all changes released through the CCB.

The following documents represent the controlled item identification established at configuration baseline design reviews. The Program Manager/CCB Chairperson may determine the baseline documentation throughout the program life cycle.

- Contracts
- Performance specifications, SOWs, and PAR documents
- GIIS
- UIIS'
- Interface Control Documents (ICDs)
- Drawings at all levels, associated parts and materials lists, schematics, interconnecting diagrams, and tables
- Specifications including development and product specifications as well as software requirements and design specifications
- Test plans and procedures

Directives controlled on the Goddard Directive Management System (GDMS) will follow the procedures of GPG 1410.1 and 400-PG-1410.1.1.

3.2.1 LEVEL OF CONTROLLED DOCUMENTATION

Level I documentation is authored, generated, revised, published and controlled by

POES Program personnel. CCB approval and Program Manager's signature is required for Level I documentation and is necessary to establish the official document as part of the Program baseline requirements. Documents considered being a Level I document may not be signed or published without CCB disposition. Changes to a Level I document require CCB review and approval prior to implementation. This kind of documentation will be assigned a Program control number and controlled by the CMO. Level I documentation is listed on the POES Program Master Controlled Document List.

LEVEL II Documentation is information identified for delivery or availability on an as needed basis. Level II documentation provides data that is incidental to the performance of the contract. Such documents are generated under the authority of the appropriate manager. These documents are submitted for approval to the appropriate manager for acceptance. Changes to Level II documentation may be authorized and maintained by the appropriate manager. POES Program control number is not required for Level II documentation. This Level of document shall be submitted to the POES Library and remain on file in accordance with the retention policy.

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4.0 CONFIGURATION CONTROL

Configuration control is the process by which changes are proposed, evaluated, coordinated, and approved or disapproved. Approved changes will subsequently be implemented to the design and production of a CI whose configuration has been formally approved and baselined.

4.1 CLASSIFICATION OF CHANGES

All proposed changes to documentation that are submitted to the POES CCB for disposition should be designated as Class I or Class II. A CCR may be submitted as an administrative change that falls within the definition of a Class I or Class II change when deemed appropriate.

4.1.1 ADMINISTRATIVE CHANGES

A CCR may be processed as an administrative change. Administrative changes are not distributed to the entire list of CCB members. Administrative changes neither add nor delete scope. An example of an administrative change is a CCR whose purpose is to modify contract documentation as required for work authorized through other contract vehicles.

4.1.2 CLASS I CHANGES

A change shall be classified Class I when one or more of the items defined in Appendix B, "POES Program Processing Procedures for Configuration Change Requests, Deviations, and Waivers", are affected. Class I changes must be submitted for POES CCB approval.

4.1.3 CLASS II CHANGES

A proposed change shall be classified Class II when it does not fall within the definition of a Class I change. Class II changes do not require Program CCB approval prior to implementation, however, copies must be provided to the POES Configuration Management Office (CMO) for Program concurrence of classification.

4.2 CHANGE PRIORITIES

All Configuration Change Requests (CCRs) shall be assigned a priority: Emergency (CCR is dispositioned 1 working day after CCR is distributed); Urgent (CCR is dispositioned 5 working days after CCR is distributed); or Routine (CCR is dispositioned 10 working days after CCR is distributed).

It is incumbent upon the initiator of any CCR, and the cognizant contract Technical

Officer (TO), to plan ahead and assure timely submission of CCRs such that they can be processed as a Routine.

Use of the emergency procedures requires justification preparation by the CCR initiator prior to submittal to CMO for the purpose of CCB review and approval. A CCR may be considered an emergency when and if immediate action is required to avoid serious impact to POES Program objectives. A statement explaining the rationale for the emergency must be added to Section 2 on the CCR form, “Reason for Change”.

4.3 CONFIGURATION CHANGE REQUESTS

All Class I proposed changes to baselined documentation shall be submitted on a POES CCR form (480-39I) to the POES CMO. CCRs submitted for CCB disposition shall contain all pertinent supporting information (i.e., technical, cost and schedule data). The POES CCR form (480-39I) can be accessed from the POES Web Page (http://poes.gsfc.nasa.gov)**.**

CCRs are quality records maintained as audit evidence to demonstrate conformance to POES Program requirements and the effective operation of the GSFC Quality Management System in accordance with GPG 1440.7. The CCR becomes a quality record when it has been closed.

4.4 PROCESSING OF CHANGES

4.4.1 CLASS I CHANGE PROCESSING THROUGH THE CONFIGURATION CONTROL BOARD

The requirements and procedures for CCR preparation and processing are detailed in Appendix B.

4.4.2 PROCESSING CHANGES RELATING TO THE NOAA-PROVIDED INSTRUMENTS FOR THE EUMETSAT METOP SPACECRAFT

The requirements and procedures for the preparation and processing of changes relating to the NOAA-provided instruments for the EUMETSAT METOP spacecraft are detailed in Appendix C, "POES Program Processing Procedures for Configuration Change Requests, Deviations, and Waivers Relating to the NOAA-Provided Instruments for the EUMETSAT METOP spacecraft".

4.4.3 PROCESSING CHANGES FROM CONTRACTORS

Changes from contractors shall be processed in accordance with the requirements

defined in the contract.

4.5 DEVIATIONS AND WAIVERS

4.5.1 DEVIATIONS

A deviation is a specific authorization granted before the manufacture of an item allowing departure from a particular performance or design requirement of a specification, drawing, or other document for a specific number of units or time. A deviation shall not require revision to the applicable documentation. An approved engineering change is required for revision of the documentation that defines the affected item.

Each request for a deviation shall be designated as minor or major.

4.5.2 WAIVERS

A waiver is a written authorization to accept a controlled item or other designated items, which during the production or after having been submitted for inspection, are found to depart from specified requirements, but nevertheless are considered suitable for use "as is" or after rework by an approved method.

Each request for a waiver shall be designated as minor or major.

4.5.3 DEVIATION AND WAIVER DESIGNATIONS

4.5.3.1 MINOR DEVIATIONS AND WAIVERS

Deviations and waivers shall be designated as minor when they consist of a departure, which does not involve any of the factors listed in Paragraph 4.5.3.2.

4.5.3.2 MAJOR DEVIATIONS AND WAIVERS

Deviations and waivers shall be designated as major when they consist of a departure involving: (1) health and safety of personnel, facilities, support equipment, or flight hardware and mission software; (2) performance; (3) interchangeability, reliability, or maintainability of the item or its repair parts; (4) effective use or operation; (5) weight, power, or envelope; or (6) hardware and process qualification.

4.5.4 PROCESSING OF WAIVERS AND DEVIATIONS

All major deviations and waivers constitute changes to the "contract" and, as such, shall be processed through the CCB system. Deviations and waivers shall be written on the

POES CCR form. Major deviations and waivers shall be dispositioned by the CCB and signed by the CCB Chairperson. Minor deviations and waivers shall be dispositioned out-of-board and signed by the appropriate technical manager.

5.0 CONFIGURATION STATUS ACCOUNTING

The POES CMO is responsible for recording, maintaining, and reporting information needed for managing each POES CI item effectively. Status accounting activities include recording the establishment of each baseline for configuration identification and recording and reporting the status of proposed changes to these configuration baselines, any action items associated with these changes, and implementation status of approved changes.

5.1 STATUS ACCOUNTING REPORTS

The CMO is responsible for developing the requirements, testing, and subsequent enhancement of the CM status accounting databases. The CMO is also responsible for maintaining the data in these databases, which are capable of generating many reports that are routinely disseminated to POES Program personnel. The POES CMO shall develop and implement the status accounting reports delineated in Paragraphs 5.1.1 through 5.1.3 of this Procedure.

5.1.1 CCR STATUS REPORT

The CCR Status Report identifies each CCR submitted to the CMO for processing through the CCB and its current status. Reports are distributed to the Program monthly and are available upon request from the CMO.

5.1.2 CCR COST IMPACT REPORT

The CCR Cost Impact Report identifies cost impacts associated with each CCR submitted to the CMO for processing through the CCB. The CCR Cost Impact Report can be provided upon request from the CMO.

5.1.3 CCB ACTION ITEM REPORT

The CCB Action Item Report will identify all action items necessary for processing a CCR through its required approval cycle and identify and track all actions necessary for implementation of the change. The Action Item Report may be provided upon request from the CMO.

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6.0 CONFIGURATION AUDITS

The CMO is responsible for ensuring that the CM discipline is implemented at the Program and contractor levels. The CMO, in cooperation with the Systems Assurance Manager, performs CM audits**,** as required**,** at the Program and contractor level.

6.1 INTERNAL PROGRAM AUDITS

The CMO shall continuously monitor all disciplines involved in the CM function. The purpose of the internal audit process is to ensure that the CM procedures are being adhered to and properly implemented. This task will consist of periodic audits of the release and document control operations, including the use of released documentation, review of all CCRs for completeness, and review of contract modifications and technical directions to ensure the CCB is not being bypassed.

6.2 CONTRACTOR AUDITS

The CMO is responsible for assisting the System Assurance Manager in performing audits**,** as requested by the Program Manager**,** of the mission contractor and instrument suppliers' CM systems to ensure their CM practices are sufficient and compatible with the requirements of this Procedure. These audits will generally be scheduled approximately during the timeframe of each PDR and CDR and may be supplemented by additional audits when deemed necessary by the Program. Items to be covered during the audit are as follows:

- Configuration and data management responsibilities
- Configuration identification and identification of changes
- Configuration control board activities and responsibilities
- CCR classification procedures
- Subcontractor/vendor control procedures
- Change review procedures
- Document release procedures
- Document change processing
- Interface control procedures
- Change verification

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7.0 CONTRACTOR CONFIGURATION MANAGEMENT SYSTEMS

The contract vendor establishes a configuration management system in accordance with the requirements defined in the contract.

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8.0 DOCUMENTATION MANAGEMENT

8.1 MASTER CONTROLLED DOCUMENT LIST (MCDL)

A MCDL is maintained by the CMO. The MCDL contains a list of baseline documents under CM control by the POES Program. The documents listed on the MCDL are POES Level I documentation. This documentation may be changed or revised through the formal CCB approval process only.

The following ground rule has been established for identifying documentation to be placed on the MASTER MCDL:

"The document must be authored, generated, revised, published and controlled by POES Program personnel".

The Master MCDL is available online at the following POES CM Web Site or upon request from the CMO:

http://poes.gsfc.nasa.gov/iso/baseline.pdf

The master copy of baseline documentation under CM control by the POES Program is maintained on file in the CM Office.

This list contains the document number, title, responsible manager, release date, version, library number, and contract MOD. Documentation on this list requires an approved CCR to change or revise the document.

8.2 DOCUMENT MAINTENANCE

The POES CMO shall prepare document change pages to internally controlled documents (e.g., statements of work, performance specifications, and performance assurance requirements), upon change approval by the POES CCB. POES spacecraft and instrument contractors are responsible for updating their controlled drawings/documentation once changes are approved by the appropriate CCB in accordance with their established procedures.

8.2.1 DOCUMENT/DRAWING NUMBERS IDENTIFICATION

Document identification numbers (e.g. GSFC S-480-XXX) shall be assigned to all internal controlled Level I documents by the POES CMO prior to baselining by the CCB. As a minimum, the first page (cover page) of all controlled documents, with the exception of engineering drawings, will contain the following information:

a. Unique document number

b. Revision level of the correct version (with the exception of documents baselined/updated prior to the approval of Revision A of this Procedure);

c. Document title;

d. Name and organizational code of Responsible Organization (with the exception of documents baselined/updated prior to the approval of Revision A of this Procedure); and

e. Approval/effective date.

For all documents subject to revision, a footer shall be placed on the cover indicating where to confirm the proper revision status. Example:

"CHECK THE POES MASTER CONTROLLED DOCUMENTS LIST AT:http://poes.gsfc.nasa.gov/iso/baseline.pdf TO VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE"

POES Program spacecraft and instrument contractors shall utilize their own document/drawing numbering system in accordance with their internal procedures.

8.2.2 DOCUMENT DISTRIBUTION

The POES CMO shall ensure copies of each original and/or revised document and approved changes are submitted to the Documentation Control Center and will be disseminated for reference only.

8.3 DOCUMENTATION CHANGES

8.3.1 INTERNALLY CONTROLLED DOCUMENTATION

The POES CMO shall prepare document change pages resulting from approved CCRs. Each DCN change package shall include a Document Revision Change Record Page, List of Affected Pages and updated pages to affected documentation. Change pages are complete reprints of pages and are suitable for incorporation into documents by removal of old pages and insertion of new pages.

Change bars shall be placed in the margin to indicate where to locate changes. CMO shall post updates to affected documentation on the POES CM web page at "http://poes.gsfc.nasa.gov/". Hard copies of changes to affected documentation are distributed to cognizant personnel and the POES library. DCNs are submitted to the CO for contract modification preparation.

8.3.2 EXTERNALLY CONTROLLED DOCUMENTATION

The instrument and spacecraft contractors shall be notified of CCR approval by the

appropriate POES Contracting Officer. The approved changes, as agreed to by the POES CCB, shall be forwarded to the CO. The CO shall prepare the appropriate procurement action. The CMO, in cooperation with contractor CM office, shall obtain and verify updates to the affected documentation. The CCR shall remain open until approved changes have been properly implemented into affected baseline documentation that is controlled by the contractor.

8.3.3 DOCUMENT REVISION STATUS

Baseline documents requiring revisions shall be updated per CCB approval. A document change notice will be updated to reflect the latest approved change(s) and/or the document will be updated to the next letter revision and effective date. In the event that a document has been superseded by another document and/or cancelled, the document will be clearly identified as superseded or cancelled and a notification will be sent to the Program personnel.

A Master Controlled Documents List is updated and available on the POES Web page (http://poes.gsfc.nasa.gov/iso/baseline.pdf) to reflect the latest approved document revision(s). This list contains, as a minimum, a document number, title, revision status, effective date, and name of responsible organization.

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APPENDIX A

POES PROGRAM
MEMBERSHIP AND RESPONSIBILITIES
OF THE CONFIGURATION CONTROL BOARD

A.0 POES PROGRAM MEMBERSHIP AND RESPONSIBILITIES OF THE CONFIGURATION CONTROL BOARD

A.l CONFIGURATION CONTROL BOARD MEMBERSHIP

A.1.1 STANDING MEMBERS

The standing members shall advise/counsel the Chairperson on subjects being considered by the CCB to ensure that the Chairperson's decisions are based on technical and Program positions consistent with the members' evaluation of the subject matter. The POES Program standing members are as follows:

- Chairperson (Program Manager)
- Alternate Chairperson (Deputy Program Manager)
- Deputy Program Manager/Resources
- Instrument Systems Manager
- Observatory Manager
- Systems Manager
- Systems Assurance Manager
- Financial Manager
- Procurement Manager/Contracting Officer
- Configuration Management Officer
- NOAA Representative
- Schedule Manager
- METOP Mission Manager

In the event that a standing member is unavailable, the Chairperson shall determine whether to proceed with the CCB or reschedule.

A.1.2 AD-HOC MEMBERS

The participation of ad-hoc members is required only when matters related to their particular area of responsibility are being considered by the CCB. Ad-hoc members shall advise and counsel the Chairperson on their areas of expertise. The POES Program ad-hoc members include, but are not limited to, the following:

- Program Scientist
- Science Systems Manager
- Program Support Manager

- Data Operations Manager
- Flight Operations Manager
- Search And Rescue Mission Manager
- Instrument Manager(s)
- ISO Implementation Manager
- Financial Specialist(s)
- Cognizant Engineer(s)

A.2 RESPONSIBILITY

A.2.1 CONFIGURATION CONTROL BOARD

The POES CCB is responsible for formally evaluating, disposing, and documenting its actions relative to proposed changes to Level I Documentation. The reviewer shall ensure that the impact of the change on all specified CIs is considered in terms of performance, cost, and schedule.

The POES CCB is responsible for making recommendations to the Chairperson for approving, disapproving, or deferring the following for further study:

- All change proposals that affect form, fit, or functional requirements defined in applicable performance specifications, engineering drawings, and other baseline documents.
- All change proposals that exceed the total monies allocated for a particular system and/or contract.
- All changes that delay the delivery date beyond that established in the current official Program schedules.

A.2.2 PROGRAM MANAGER

The Program Manager serves as CCB Chairperson and is responsible for establishing the GSFC POES Program CCB, appointing its standing and ad-hoc members, presiding over CCB meetings, and exercising final approval/disapproval authority of CCB recommendations.

A.2.3 DEPUTY PROGRAM MANAGER

The Deputy Program Manager is a permanent member of the CCB and is delegated the responsibility of Alternate Chairperson by the Program Manager.

A.2.4 DEPUTY PROGRAM MANAGER/RESOURCES

The Deputy Program Manager/Resources is responsible for reviewing all matters relating to Program resources, contract costs, and schedule impacts; and makes recommendations to the CCB on these matters.

A.2.5 INSTRUMENT SYSTEMS MANAGER

It is the responsibility of the Instrument Systems Manager to review and evaluate the impact of proposed changes, deviations, and waivers on instrument performance, cost, and schedule; and make recommendations to the CCB. The Instrument Systems Manager shall sign any CCB Directive affecting a change to an instrument prior to the Chairperson's approval.

A.2.6 OBSERVATORY MANAGER

It is the responsibility of the Observatory Manager to review and evaluate the impact of all proposed changes, deviations, and waivers at the spacecraft level, ensuring that interfacing flight and ground systems are not impacted by the proposed change, and make recommendations to the CCB. The Observatory Manager shall sign any CCB Directives affecting a change to the spacecraft prior to the Chairperson's approval.

A.2.7 SYSTEMS MANAGER

The Systems Manager is responsible for reviewing and evaluating the impact of all proposed changes, deviations, and waivers on the flight systems (which includes interfaces within flight systems and between the ground and flight systems) and making recommendations to the CCB.

A.2.8 SYSTEMS ASSURANCE MANAGER

It is the responsibility of the Systems Assurance Manager (SAM) to review and evaluate the impact of all proposed changes, deviations, and waivers on system reliability, safety, and product assurance; and make recommendations to the CCB. The SAM shall coordinate with Code 300 organizations responsible for reliability, environmental testing, parts, manufacturing processes, materials, computer software assurance, and the Systems Review Office as applicable in making such recommendations. In addition, the SAM shall have coordination responsibility within the POES Program Office for all changes that involve contract PAR changes.

A.2.9 FINANCIAL MANAGER

The Financial Manager is responsible for reviewing all proposed changes, deviations, and waivers, evaluating the impacts of their costs, and making recommendations to the CCB.

A.2.10 PROCUREMENT MANAGER/CONTRACTING OFFICER

The Procurement Manager/Contracting Officer is responsible for reviewing all proposed changes, deviations, and waivers, evaluating their impact on the contract baseline, ensuring all contractual obligations are addressed, assuring all contractor proposals are in order, and making recommendations to the CCB.

A.2.11 CONFIGURATION MANAGEMENT OFFICER

The CM Officer is responsible for managing the overall POES CM task which includes identifying, directing, and coordinating all POES Program CM activities as specified in this Procedure and for implementing all CM procedures as outlined in Appendices B and C.

A.2.12 NOAA REPRESENTATIVE

The NOAA Representative is responsible for reviewing and evaluating all proposed changes, deviations, and waivers for overall impact to the NOAA Polar Program and Operational Missions.

A.2.13 SCHEDULE MANAGER

The Schedule Manager is responsible for reviewing and evaluating all proposed changes, deviations, and waivers for impact to the Program schedule objectives.

A.2.14 METOP MISSION MANAGER

The METOP Mission Manager is responsible for reviewing and evaluating all proposed changes affecting METOP, and makes recommendations to the CCB on changes affecting METOP. The METOP Mission Manager will sign CCB Directives after CCB review has been completed and prior to the Chairperson's approval.

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APPENDIX B

POES PROGRAM
PROCESSING PROCEDURES FOR CONFIGURATION CHANGE REQUESTS, DEVIATIONS, AND WAIVERS

B.0 POES PROGRAM PROCESSING PROCEDURES FOR CONFIGURATION CHANGE REQUESTS, DEVIATIONS, AND WAIVERS

B.1 CLASS I AND II CONFIGURATION CHANGE REQUESTS

B.1.1 CLASS I

A CCR shall be classified Class I when a new document or change is proposed to a Program baseline document (i.e., UIIS, Contamination Plan, Satellite Performance Specification, Contract SOW, etc.) and affects one or more of the following:

- Program baseline documentation
- Technical requirements contained in the product configuration identification including the following:
  - form, fit, or function
  - power
  - reliability outside stated requirements
  - weight, balance, moment of inertia
  - interface characteristics
  - hardware and process qualification
- Nontechnical contractual provisions
  - fee
  - incentives
  - cost
  - schedule
  - guarantees or deliveries
- Other factors
  - Government-Furnished Property (GFP)
  - safety
  - electromagnetic characteristics

- deliverable operational, test, or maintenance computer programs
- compatibility with support equipment

All Class I CCRs require the approval of the CCB Chairperson prior to implementation.

B.1.2 CLASS II

Class II changes (all other changes) do not require Program approval prior to implementation, however, Program concurrence of their classification is required. Class II changes are submitted to the POES CMO for review. The CM Officer evaluates each change with the respective Observatory or Instrument Systems Manager who designates a responsible CCR Initiator. The CMO assigns a review due date and prepares and forwards the Class II change package to the responsible CE. Class II changes are monitored and tracked for concurrence by the CMO.

B.2 CONFIGURATION CHANGE REQUEST PROCESSING

All POES CCRs shall be processed following the procedures outlined below. The POES change control flow is detailed in Figure B-1.

B.2.1 PREPARATION OF POES CONFIGURATION CHANGE REQUEST FORM

CCRs shall be submitted to the CMO on the POES CCR form 480-39I and shall require the following mandatory information:

- Enter the CCR Title as a brief statement, which indicates what the CCR addresses.
- Indicate whether the proposed change was initiated by GSFC or contractor personnel.
- Indicate whether the proposed change is a Class I or II CCR, deviation, or waiver.
- Identify whether the proposed change is an administrative change. (Refer to section 4.1.1.)
- Identify the change priority:

  EMERGENCY -- The CCR is dispositioned 1 working day after

CCR is distributed. Justification required.

URGENT -- The CCR is dispositioned 5 working days after CCR is distributed.

ROUTINE -- The CCR is dispositioned 10 working days after CCR is distributed.

- Enter all spacecraft, instruments, and instrument flight model affected by this proposed change.
- Block 1 -- The description of proposed change shall be a complete and concise statement of what the CCB is requested to approve.
- Block 2 -- Provide a complete statement of the reason for the proposed change.
- Block 3 -- Identify the appropriate procurement classification.
- Block 4 -- Indicate the document number and title for all documents known to be affected by the proposed change. Also indicate the paragraph number where the proposed change is being added, deleted, or changed and the precise words to be entered as a result of the proposed change. Change pages shall be attached including "change from" and "change to" language and/or redlined change pages.
- Block 5 -- Identify which functions/activities will be impacted by the proposed change.
- Block 5A -- Describe each impact noted in block 5.
- Block 6 -- Indicate whether there are any cost estimates or schedule impact data associated with this change. Any associated cost estimates shall be attached or indicated in the POES CCR form.

The initiator of the proposed change shall include their GSFC Code and EMAIL address; and sign and date the POES CCR form.

The initial of the METOP Mission Manager or Instrument Systems Manager shall be obtained in the upper right hand corner of the POES CCR form prior to submittal to the

CMO for all changes that affect the METOP spacecraft and instruments. The managers shall assess the CRM/CCR for technical merit and impact assessment and initial the form indicating their concurrence with the proposed changes. This process applies to METOP changes only.

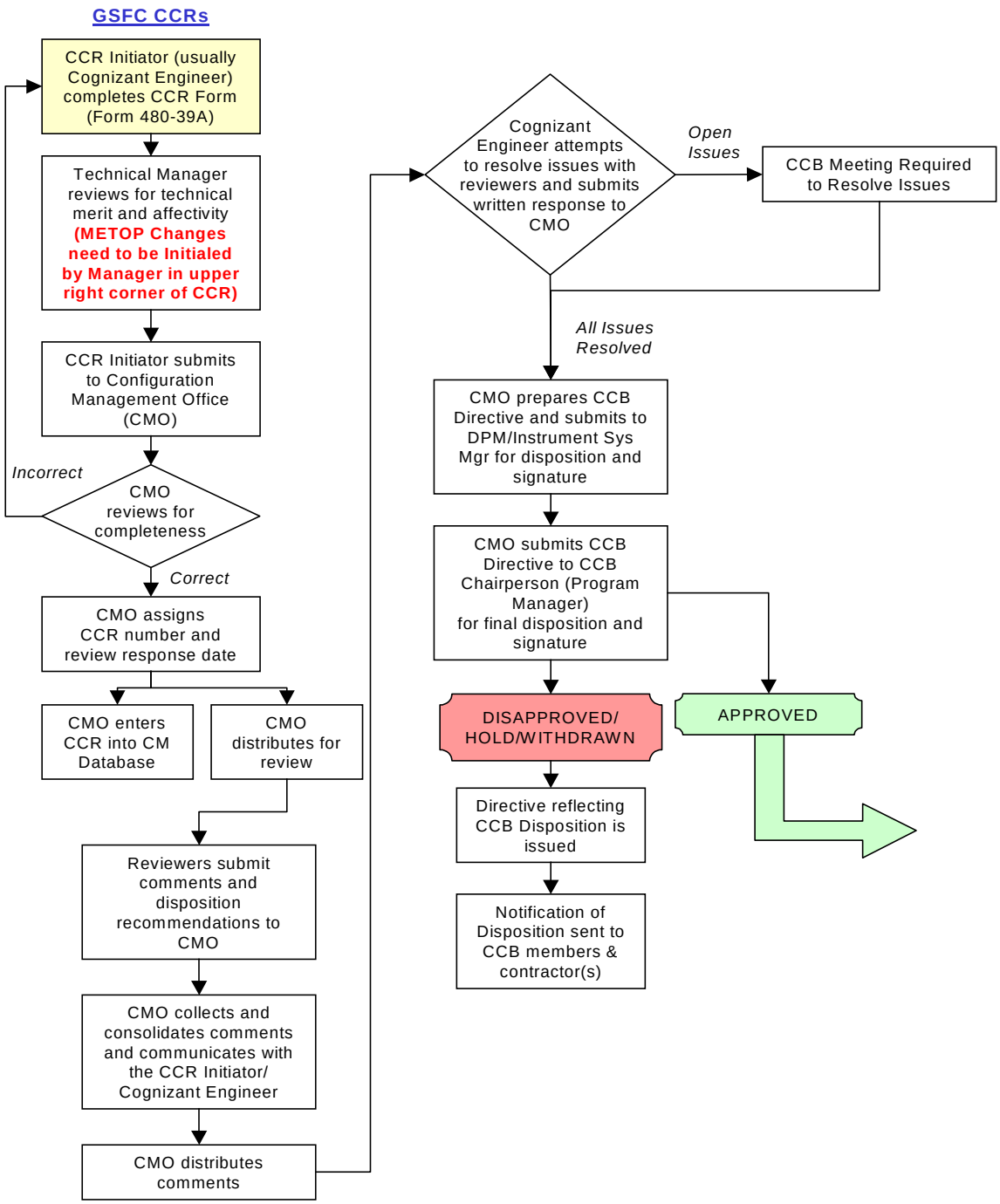

Figure B-1. POES Program Configuration Change Request Flow Diagram

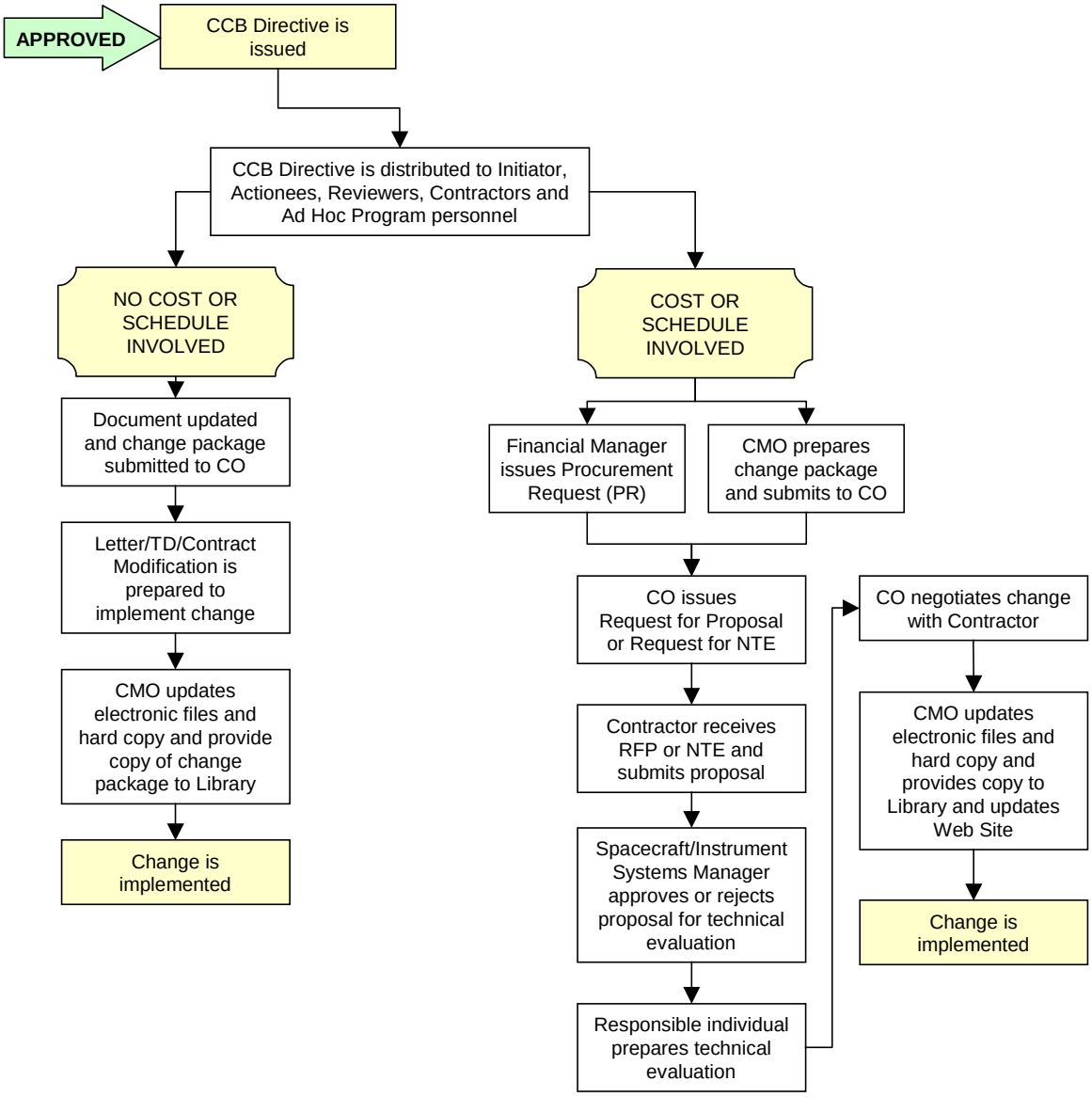

Figure B-1. POES Program Configuration Change Request Flow Diagram (cont'd)

B.2.2 CONFIGURATION MANAGEMENT OFFICE REVIEW OF CONFIGURATION CHANGE REQUESTS

The CMO serves as the central point of contact for processing all proposed configuration changes. Upon receipt, the CMO shall review the POES CCR form to ensure compliance with Program CM requirements. If corrections are warranted, the CMO shall return the CCR to the originator to resolve deficiencies.

B.2.3 PREPARING CONFIGURATION CHANGE REQUESTS FOR DISTRIBUTION

Once it is determined the CCR is ready for distribution, the CMO prepares the CCR package by performing the following functions:

- Assigns a sequential CCR number. Revisions to CCRs previously distributed by the CMO shall be identified by revision letters (i.e., CCR1340A). Spacecraft and instrument contractors who have been assigned blocks of numbers by the POES CMO shall assign shall assign the next sequential CCR numbers.

- Attaches to the POES CCR form the "change from" and "change to" and/or redlined change pages.

- Generates and attaches a CCR Route Sheet to the CCR which indicates the CCR number, title, initiator, and review response date. The CCR Routine Route Sheet is attached to routine and urgent CCRs. The CCR 24-Hour Route Sheet is attached to emergency CCRs.

- Enters CCR information into CM database and monitors and updates as necessary throughout CCR processing.

- Creates official CCR file and maintains record of all CCR activities throughout CCR processing.

B.2.4 DISTRIBUTION OF CONFIGURATION CHANGE REQUESTS

The CMO disseminates CCRs to a distribution list identified on the CCR Route Sheet for review. The CCR initiator is responsible for informing the CMO if additional distribution is required.

B.2.5 PROGRAM REVIEW OF CONFIGURATION CHANGE REQUESTS

CCRs are reviewed by Program personnel who record their comments and disposition recommendation(s) on the CCR Route Sheet and return the form to the CMO. The CMO collects and consolidates reviewer comments and prepares and distributes a list of consolidated comments, along with authorizing signatories, to all reviewers. (In the event that a reviewer is unavailable to provide comments, the CMO shall obtain authority from the CCB Chairperson to proceed with the process.) The CCR initiator revisits those reviewers that recommended disapproval or approval with modifications to discuss and resolve issues. The CCR initiator documents the action taken to resolve issues and returns a written response to the CMO.

B.2.6 CONFIGURATION CHANGE REQUEST DISPOSITION

The CMO consolidates the CCR package. The CCR package includes reviewer's assessments, disposition and comments, CCR form, and change pages to affected documentation. The CMO prepares a CCB Directive form to document the disposition of the CCR, and submits the package to the appropriate manager for disposition. The Observatory Manager approves changes affecting the spacecraft. The Instrument Systems Manager approves changes affecting an instrument. The METOP Mission Manager approves changes affecting METOP. Upon the manager's disposition, the Directive is then submitted to the Chairperson for final disposition of the changes.

A formal CCB meeting may be held when agreement is not met by reviewers and cognizant members of the CCB. A formal CCB meeting may be held at the discretion of the board Chairperson when deemed necessary. If a formal CCB meeting is required, the CMO is responsible for coordinating and scheduling the CCB meeting.

The POES CCB Chairperson has final disposition authority for all CCRs. In the event that the Program Manager and Deputy Program Manager are not available for CCB signature, the Deputy Program Manager/Resources is authorized to sign for CCRs requiring immediate CCB disposition.

B.2.7 CONFIGURATION CONTROL BOARD MEETINGS

The CMO acts as Executive Secretary for the POES Program CCB. POES CCB

meetings shall be convened as required. The CMO shall issue an agenda prior to the scheduled CCB meeting. The agenda will be distributed to each CCB participant and will include the date, time, location of the meeting and the agenda items to be discussed. The CMO is responsible for the preparation of CCRs for dissemination to CCB attendees. The CCB Chairperson may convene emergency CCB meetings at any time.

B.2.8 ACTION ITEMS

The CMO shall document the CCR disposition and any assigned action items on the CCB Directive form and forward the entire CCR package to the CCB Chairperson for signature. The CMO shall distribute the signed CCB Directive form to the CCR initiator and actionee's for information and/or action. The CMO shall also enter all action items into the Action Item database and update as necessary through action item closure.

B.2.9 ACTION ITEM CLOSURE

The action items assigned on the CCB Directive form shall be accomplished by the actionee. Action items shall be closed only when the CMO is provided copies of required documentation.

B.2.10 CONTRACT ACTION

The appropriate contract action change order, Request for Proposal (RFP), bilateral modification, or contracting letter of direction will be implemented for all approved CCRs. A notification of disapproval shall be issued for all CCRs rejected by the POES CCB.

B.3 DEVIATION/WAIVER PROCESSING

Deviations and waivers are defined in Section 4.5 of this document. All deviations and waivers submitted to the CMO for processing shall be documented on the POES CCR form. The CMO processes deviations and waivers following the established CCR procedures outlined in Section B.2. Contractors are notified of the approval/disapproval of deviations and waivers dispositioned by the CCB.

APPENDIX C

POES PROGRAM
PROCESSING PROCEDURES FOR
CONFIGURATION CHANGE REQUESTS, DEVIATIONS, AND WAIVERS
RELATING TO THE NOAA-PROVIDED INSTRUMENTS FOR THE
EUMETSAT METOP SPACECRAFT

C.0 POES PROGRAM PROCESSING PROCEDURES FOR CONFIGURATION CHANGE REQUESTS, DEVIATIONS, AND WAIVERS RELATING TO THE NOAA-PROVIDED INSTRUMENTS FOR THE EUMETSAT METOP SPACECRAFT

C.1 GENERAL

NOAA/NASA and EUMETSAT/ESA shall implement a configuration management system through which proposed interface changes affecting the NOAA-provided instruments for the EUMETSAT METOP spacecraft, hereinafter referred to as the Initial Joint Polar System (IJPS), are thoroughly assessed, disposed, documented, and controlled. A technical baseline shall be defined and jointly agreed to by all agencies.

When conflicts exist, a Joint Configuration Control Board (JCCB) comprised of the Program/Project Managers from NOAA, NASA, EUMETSAT, and ESA may be initiated to reach a mutually agreed to decision regarding the proposed change in question. Decisions of the JCCB are unanimous and all agencies are required to implement the final disposition of the JCCB. Any dispute that cannot be resolved by the JCCB shall follow the settlement of disputes procedures as stipulated in Article 12 of the Agreement between the United States National Oceanic and Atmospheric Administration and the European Organization for the Exploitation of Meteorological Satellites on an Initial Joint Polar-Orbiting Operational Satellite System.

A second document referred to as the "Configured Baseline Documentation Set" (CBDS) shall be developed and jointly agreed to by all agencies. Proposed changes to any document listed on the CBDS shall be submitted to all agencies for information. Issues pertaining to proposed changes affecting documents on the CBDS can be referred back to the originating agency for review/consideration.

The POES Configuration Management Office (CMO) shall exchange status information with the NOAA, EUMETSAT, and ESA CMOs on a regular basis.

C.2 PROCESSING IJPS CONFIGURATION CHANGE REQUESTS

If a change is initiated by ESA, they have an internal review and distribute an approved Instrument Change Proposal (ICP) to NASA POES CMO. CMO distributes the ICP to the METOP Mission Manager and cognizant Technical Lead for review and approval. If an ICP is approved, the Technical Lead writes a related CRM (Change Request METOP), which is processed similar to a CCR. CRMs may also be initiated by POES. The POES Program shall process CRMs following the procedures outlined below. The IJPS change control flow is detailed in Figure C-1.

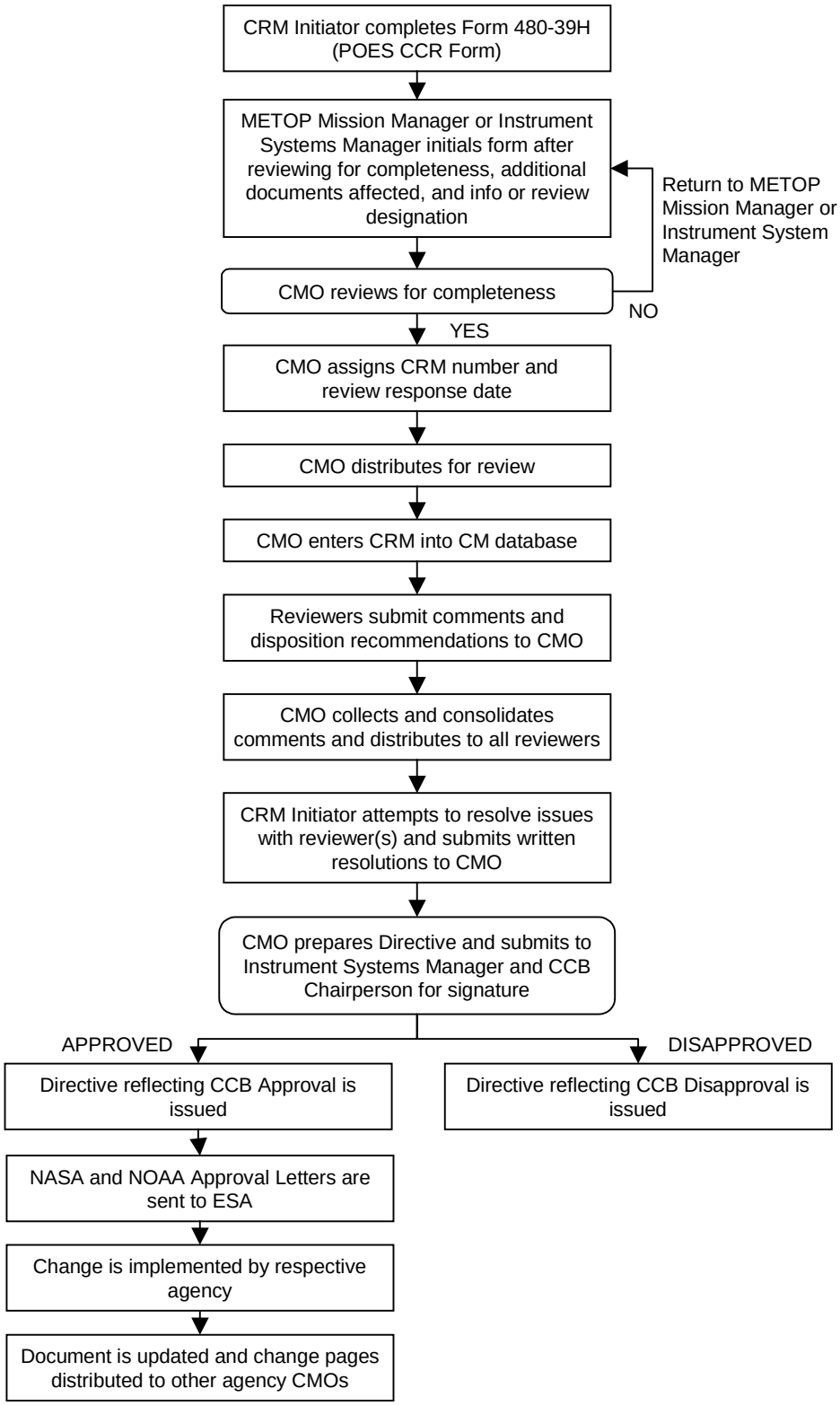

Figure C-1. IJPS Change Control Flow Diagram

C.2.1 PREPARATION OF CONFIGURATION CHANGE REQUEST FORM

IJPS CRMs shall be submitted to the POES CMO on the POES CCR form 480-39I and shall require the following mandatory information:

- Enter the CRM Title as a brief statement, which indicates what the CCR addresses.
- Indicate whether the proposed change is a deviation or waiver.
- Enter all spacecraft/or instruments affected by this proposed change.
- Block 1 -- The description of proposed change shall be a complete and concise statement of what is being requested for approval.
- Block 2 -- Provide a complete statement of the reason for the proposed change.
- Block 3 -- Identify the appropriate procurement classification and provide explanation for its choice. When procurement classifications are not applicable, indicate the priority of the CRM as Emergency, Urgent, or Routine.
- Block 4 -- Indicate the document number and title for all documents known to be affected by the proposed change. Also indicate the paragraph number where the proposed change is being added, deleted, or changed and the precise words to be entered as a result of the proposed change. Change pages shall be attached including "change from" and "change to" language and/or redlined change pages.
- Block 5 -- Identify which functions/activities will be impacted by the proposed change.
- Block 5A -- Describe each impact noted in Block 5.
- Block 6 -- Indicate whether there are any cost estimates or schedule impact data associated with this change. Any associated cost estimates shall be attached to the POES CCR form. Since there shall be no exchange of funds between NOAA/NASA and EUMETSAT/ESA, each agency shall bear its own cost in implementing JCCB decisions.

The initiator of the proposed change shall include the GSFC Code and EMAIL address*;* sign and date the POES CCR form.

C.2.2 PRELIMINARY REVIEW OF CONFIGURATION CHANGE REQUESTS

The POES CMO shall forward all IJPS CRMs to the POES Instrument Systems Manager or METOP Mission Manager for preliminary review to determine (1) whether the CRM is complete and ready for disposition; (2) whether the CRM shall be distributed for information or mandatory review; and (3) whether any other documentation is affected by the proposed change. The POES Instrument Systems Manager or METOP Mission Manager initials off in the upper right-hand corner of the POES CCR form 480-39I and returns to the POES CMO or Initiator for processing.

C.2.3 POES CONFIGURATION MANAGEMENT OFFICE REVIEW OF CONFIGURATION CHANGE REQUESTS

The POES CMO serves as the central point of contact for processing proposed IJPS configuration changes through the JCCB. Upon receipt, the POES CMO shall review the CRM package to ensure compliance with Program CM requirements. If corrections are warranted, the POES CMO shall return the CRM to the POES METOP Initiator to resolve deficiencies.

C.2.4 PREPARING CONFIGURATION CHANGE REQUEST FOR DISTRIBUTION

Once it is determined the CRM is ready for distribution, the CMO prepares the CRM package by performing the following functions:

- Assigns a sequential CRM number. Revisions to CRMs previously distributed by the CMO shall be identified by revision letters (i.e., CRM130A).
- Generates and attaches a CRM Route Sheet to the CRM which indicates the CRM number, title, initiator, and review response date.
- Enters CRM information into CM database and monitors and updates as necessary throughout CRM processing.
- Creates official CRM file and maintains record of all CRM activities throughout CRM processing.

C.2.5 DISTRIBUTION OF CONFIGURATION CHANGE REQUESTS

The POES CMO disseminates, via telefax and internal mail, CRMs to the distribution list identified on the CRM Route Sheet for review. The Initiator is responsible for

informing the CMO if additional distribution is required.

C.2.6 CONFIGURATION CHANGE REQUEST REVIEW

CRMs are reviewed by NOAA/NASA. The POES CMO collects and consolidates all comments and prepares and distributes a list of consolidated comments to all reviewers. The Initiator contacts those reviewers that recommended disapproval or approval with modifications to discuss and resolve issues. The Initiator documents the action taken to resolve issues and returns a written response to the CMO.

C.2.7 CONFIGURATION CHANGE REQUEST DISPOSITION

The POES CMO consolidates the CRM package, including all reviewer information, and if a JCCB is not required, prepares the CCB Directive form and submits to the Instrument Systems Manager and CCB Chairperson for signatures.

C.2.8 JOINT CONFIGURATION CONTROL BOARD MEETINGS

JCCB meetings shall be convened as required. The POES CMO shall coordinate the JCCB meeting with the NOAA, EUMETSAT, and ESA CMOs and issue an agenda at least 2 days prior to the scheduled JCCB meeting. The agenda will be distributed to each agency and will include the date, time, location of the meeting, and the agenda items to be discussed. Emergency JCCB meetings may be convened at any time.

C.2.9 ACTION ITEMS

The POES CMO shall document the CCB disposition and any assigned action items on the CCB Directive form and forward the entire CCB package to the Instrument Systems Manager and CCB Chairperson for signatures. The POES CMO shall distribute the signed CCB Directive form to all JCCB members for information and/or action. The POES CMO shall also enter all action items into the Action Item database and update as necessary through action item closure.

C.2.10 ACTION ITEM CLOSURE

The action items assigned on the CCB Directive form shall be accomplished by the actionee by the due date reflected on the form. Action items shall be closed only when the POES CMO is provided copies of required documentation.

C.2.11 APPROVED CONFIGURATION CHANGE REQUEST IMPLEMENTATION

Incorporation of approved CRMs into controlled documentation shall be the responsibility of the agency accountable for document maintenance. It is the responsibility of the respective CMO to prepare the document revision or change

package and disseminate to all agencies. For traceability purposes, the CRM number(s) associated with incorporation of approved changes shall be reflected in the appropriate document revision or change package.

C.3 DEVIATION/WAIVER PROCESSING

Deviations and waivers as defined in Section 4.5 of this Procedure shall be documented on both the POES CRM form and submitted to the POES CMO. Deviations and waivers shall be processed following the established IJPS CRM procedures outlined in Section C.2. All relevant parties shall be notified of the approval/disapproval of deviations and waivers dispositioned by the CCB. Approved waivers and deviations are entered on the POES GFE Instrument Waiver Matrix, GSFC S-480-158.

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APPENDIX D

POES PROGRAM ACRONYM LIST

POES PROGRAM ACRONYM LIST

CAL	Configured Articles List
CCB	Configuration Control Board
CCBD	Configuration Control Board Directive
CCR	Configuration Change Request
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CE	Cognizant Engineer
CI	Configuration Item
CM	Configuration Management
CMO	Configuration Management Office
CNES	Centre National d'Etudes Spatiales
CO	Contracting Officer
CRB	Configuration Review Board
CRM	Change Request Metop
CSM	Cognizant Staff Member
DCAS	Defense Contract Administration Services
DOC	Department of Commerce
DOD	Department of Defense
DPM	Deputy Program Manager
EOS	Earth Observing System
EPS	EUMETSAT Polar System
ESA	European Space Agency
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
GDMS	Goddard Directive Management System
GFP	Government Furnished Property
GIIS	General Instrument Interface Specification
GPG	Goddard Procedures and Guidelines
GSFC	Goddard Space Flight Center
ICD	Interface Control Document
ICP	Instrument Change Proposal
IJPS	Initial Joint Polar System
IRDL	IJPS Reference Document List
JCCB	Joint Configuration Control Board
MCDL	Master Control Document List
METOP	Meteorological Operational (Satellites)
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
NTE	Not to Exceed
PAR	Performance Assurance Requirements
PDR	Preliminary Design Review
PG	Procedure and Guideline
POES	Polar Operational Environmental Satellites
PR	Procurement Request
RFP	Request for Proposal
ROM	Rough Order of Magnitude
SAM	Systems Assurance Manager
SARSAT	Search and Rescue Satellite-Aided Tracking
SOW	Statement of Work
SRD	Software Requirements Document
TA	Task Assignment
TD	Technical Direction
TO	Technical Officer
UIIS	Unique Instrument Interface Specification
USAF	United States Air Force
WA	Working Agreement